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May 16, 2023

Eileen Sobeck, Executive Director  
State Water Resources Control Board  
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**RE: Objection to the Draft Shasta Temperature Management Plan Submitted Pursuant to Water Rights Order 90-5**

Dear Ms. Sobeck:

On behalf of the Natural Resources Defense Council, Pacific Coast Federation of Fishermen’s Associations, Institute for Fisheries Resources, California Sportfishing Protection Alliance, Restore the Delta, Winnemem Wintu Tribe, San Francisco Baykeeper, Save California Salmon, Golden State Salmon Association, Defenders of Wildlife, and the Bay Institute, we are writing to object to the draft Shasta Temperature Management Plan submitted by the Bureau of Reclamation under Water Rights Order 90-5 (“Draft Shasta TMP”). While the Draft Shasta TMP indicates that wet conditions in 2023 are likely to result in water temperatures and carryover storage that will minimize temperature mortality of winter-run Chinook salmon this year, the Draft Shasta TMP violates Order 90-5 because it: (1) wholly ignores temperature impacts to fall-run Chinook salmon and the salmon fishery, despite the clear evidence that Reclamation’s operations are harming the salmon fishery (which is completely closed this year due to low abundance of fall-run Chinook salmon); (2) fails to demonstrate that factors beyond Reclamation’s reasonable control prevent Reclamation from maintaining water temperatures of 56 degrees Fahrenheit at Red Bluff Diversion Dam, as required by Order 90-5 and the Basin Plan. The Draft Shasta TMP demonstrates that Reclamation continues to misstate its obligations under Order 90-5, and it is clear that Reclamation’s ongoing failure to maintain water temperatures for fall-run Chinook salmon is harming the salmon fishery. Therefore, we request that if Reclamation does not modify the Draft Shasta TMP to address these obligations, the State

Water Board object to the final Shasta TMP<sup>1</sup> and formally initiate a water rights proceeding to modify Order 90-5.

The Draft Shasta TMP is inconsistent with Order 90-5, and the text of the Draft Shasta TMP demonstrates that Reclamation continues to misstate its legal obligations under Order 90-5. The Draft Shasta TMP explains that it is intended to meet Reclamation's obligations under the Trump Administration's 2019 biological opinion, the Interim Operations Plan, and to comply with Order 90-5's obligations "to consult with the California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), NMFS, and Western Area Power Administration on the designation of a location upstream of the Red Bluff Diversion Dam where Reclamation will meet a daily average water temperature of 56°F" and to submit an operations plan to the State Water Board "on Reclamation's strategy to meet the temperature requirement at a location upstream of Red Bluff Diversion Dam" under Order 90-5. *See* Draft Shasta TMP at 1. This is not consistent with Order 90-5.

First, Order 90-5 only allows for designation of an upstream temperature compliance location when "factors beyond the reasonable control" of Reclamation prevent it from maintaining water temperatures of 56 degrees Fahrenheit at Red Bluff Diversion Dam. The Draft Shasta TMP fails to evaluate whether it is possible to meet 56 degrees Fahrenheit at Red Bluff Diversion Dam, let alone evaluate whether factors beyond Reclamation's reasonable control prevent achieving this water temperature obligation. In fact, the Draft Shasta TMP does not provide any modeling of water temperatures at Red Bluff Diversion Dam. This failure to consider an important aspect of Reclamation's legal obligations under Order 90-5 would render a Final Shasta TMP arbitrary and capricious.

Second, Order 90-5 does not simply require protections for endangered salmon, but instead it prohibits water temperatures that are detrimental to the salmon "fishery," including fall-run Chinook salmon, as the State Water Board has acknowledged. *See, e.g.*, April 3, 2020 letter from the State Water Board to Reclamation regarding Order 90-5 Sacramento River Temperature Planning. However, the Draft Shasta TMP fails to even mention "fall-run Chinook salmon" or "spring-run Chinook salmon" that spawn in the Sacramento River, let alone analyze or consider the impacts to these two different species. This failure to consider an important aspect of Reclamation's legal obligations under Order 90-5 would also render a Final Shasta TMP arbitrary and capricious.

As the State Water Board is aware, the salmon fishery is completely shut down this year, due to low abundance of fall-run Chinook salmon, putting thousands of people out of work. It is essential that the State Water Board require Reclamation to protect fall-run Chinook salmon in

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<sup>1</sup> Pursuant to Water Rights Order 90-5, the final Shasta TMP submitted by Reclamation to the State Water Board is deemed approved unless the Director of the Division of Water Rights objects within 10 days of submission of the plan. That deadline has not been triggered by submission of the Draft Shasta TMP.

the Sacramento River, as the evidence demonstrates that Reclamation’s operations play a significant role in the decline of the salmon fishery.

In fact, over the 2002-2020 time period, on average egg-to-fry survival of fall-run Chinook salmon in the Sacramento River has been significantly worse (lower) than average egg to fry survival of winter-run Chinook salmon, according to data published by the U.S. Fish and Wildlife Service. See Voss and Poytress 2022, attached hereto as Exhibit A.

	<b>Fall-run Chinook salmon</b>	<b>Winter-run Chinook salmon</b>
<b>Average egg-to-fry survival 2002-2020</b>	13.4%	23.4%
<b>Number of years between 2002-2020 with less than 10% egg-to-fry survival</b>	7	2

While NMFS has not published a model estimating temperature dependent mortality of fall-run Chinook salmon that is comparable to NMFS’ model of winter-run Chinook salmon temperature dependent model, the available data clearly indicate that Reclamation’s operations of Shasta and Keswick Dams, including downstream water temperatures in the fall that cause pre-spawn mortality of adults and mortality of eggs and juveniles, and redd dewatering, contribute to the extremely low egg-to-fry survival rates observed for fall-run Chinook salmon in the Sacramento River.

For instance, state and federal agencies have estimated as many as 18 percent of fall-run Chinook salmon redds were dewatered in the Sacramento River in the year 2000, although thankfully in recent years the agencies have estimated lower percentages (approximately 2%) of fall-run redds that have been dewatered. In addition, CDFW has reported that between 2003 and 2017 an average of 4 percent of fall-run Chinook salmon died before spawning, including estimated pre-spawn mortality of 8.9% in the year 2014. See Pacific Fishery Management Council, Sacramento River Fall Chinook Salmon Rebuilding Plan (July 2019), available online at: <https://www.pcouncil.org/documents/2019/07/sacramento-river-fall-chinook-salmon-rebuilding-plan-regulatory-identifier-number-0648-bi04-july-2019.pdf/>.

Temperature dependent mortality of fall-run Chinook salmon is also a significant concern. The Pacific Fishery Management Council’s rebuilding plan notes that water temperatures below Keswick Dam exceeded 54 degrees Fahrenheit during the fall-run Chinook spawning period in 12 of the 18 years between 1997 to 2014, with water temperatures peaking at 61 degrees Fahrenheit in early October 2014 (the beginning of the fall-run spawning season), and it concludes that it “was likely that nearly all [Sacramento River fall-run Chinook salmon] in the Sacramento River deposited eggs in water temperatures considered to be lethal to all, or portions of, incubating eggs or pre-emergent fry in 2014.” *Id.* Estimated egg to fry survival of fall-run Chinook salmon was only 2.3% in 2014. See Exhibit A. More recently, according to

Reclamation, water temperatures during fall-run salmon spawning have again approached or exceeded 60 degrees Fahrenheit at the Clear Creek gage, including in October 2021, when water temperatures averaged over 59 degrees and some days were over 60 degrees Fahrenheit in the Sacramento River at Clear Creek. *See* Bureau of Reclamation, Northern CVP Water Temperature Report, October 2021, online at:

[https://www.usbr.gov/mp/cvo/vungvari/sactemp rpt\\_1021.pdf](https://www.usbr.gov/mp/cvo/vungvari/sactemp rpt_1021.pdf). Although data from 2021 is not finalized by the U.S. Fish and Wildlife Service, preliminary data suggest egg to fry survival of fall-run Chinook salmon was less than 5 percent in 2021.

The extremely low – and unsustainable – egg-to-fry survival of fall-run Chinook salmon that has been observed in the Sacramento River in recent decades is due at least in part to the cumulative effects of pre-spawn mortality, redd dewatering, and temperature dependent mortality of eggs and juvenile fall-run Chinook salmon caused by Reclamation’s operations. Reclamation’s operations of Shasta Dam are not the only cause of low egg to fry survival of fall-run Chinook salmon, but Reclamation’s impacts are particularly significant in some years.

Reclamation’s obligations under Order 90-5 go far beyond requirements under the Endangered Species Act and California Endangered Species Act to prevent the extinction of threatened and endangered salmon runs. Protecting fall-run Chinook salmon and the salmon fishery – including the thousands of jobs that depend on healthy salmon runs – is a fundamental purpose of Order 90-5. Unfortunately, Reclamation has consistently ignored its obligation to protect the salmon fishery in the Draft Shasta TMP and in prior Shasta temperature management plans, which has contributed to the unsustainably low egg to fry survival of fall-run Chinook salmon in the Sacramento River over the past two decades. And while it is critically important for NMFS to replace the Trump Administration’s blatantly unlawful biological opinion, including strengthening water temperature and water storage requirements at Shasta Dam to protect endangered salmon, as NMFS proposed in its 2017 RPA amendment, NMFS’ biological opinion will not directly address impacts to fall-run Chinook salmon and the salmon fishery, and that forthcoming biological opinion is not a substitute for the State Water Board fulfilling its duty to protect the salmon fishery under Order 90-5 or ensure that water quality conditions, including water temperatures, are sufficient to achieve salmon doubling under the Bay-Delta Plan’s narrative salmon protection objective.

The State Water Board previously identified the need to modify Order 90-5, and the State Water Board’s 2022 Strategic Workplan includes a priority action (Action 2.2.1) to improve temperature management in order to protect salmon in the Sacramento River under Order 90-5. We strongly agree that amending Order 90-5 is critical to protect the future of the salmon fishery, including the thousands of fishing jobs and Native American Tribes that depend on healthy salmon runs. Modifying Order 90-5 is long overdue. For instance, Reclamation has not achieved water temperatures of 56 degrees Fahrenheit at Red Bluff Diversion Dam as required under Order 90-5 and the Basin Plan in many years, Reclamation has repeatedly refused to reduce water supply allocations to Sacramento River Settlement Contractors and take other actions under its reasonable control to improve water temperatures to protect the salmon fishery,

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and the best available science demonstrates that temperature dependent mortality of salmon eggs begins when temperatures exceed 53.5 degrees Fahrenheit. See Martin et al 2017, Martin et al 2020.

Therefore, we urge the State Water Board to object to the Final Shasta TMP if Reclamation does not modify the Draft Shasta TMP to address these obligations under Order 90-5, and to formally begin proceedings to modify Order 90-5 to be consistent with the best available science and to protect the salmon fishery, including fall-run Chinook salmon.

Sincerely,



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California Sportfishing Protection Alliance



Barbara Barrigan Parrilla  
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